

ENHANCING TRANSPARENCY IN TAX ADMINISTRATION: A SURVEY

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ABSTRACT

Uneven tax administration in Africa is a major contributor to revenue shortfalls that augment inflationary pressure while depriving governments of resources with which to provide public goods. It also stimulates resort to more easily collected taxes on foreign trade, with associated efficiency losses. Reducing evasion should ease the burden on economic agents who currently pay relatively high proportions of their tax liabilities, thus increasing allocative efficiency, enhancing incentives for those agents to invest and produce, and promoting growth with equity. The present paper outlines a framework for research on the issue of whether enhanced *transparency* in tax administration might increase compliance significantly (or at least enough to yield a positive return on research cost.) The subject goes well beyond the domain of economics, raising the question of whether heightened understanding on the part of economic agents about the extent and locus of noncompliance and its implications for economic stability and growth might (i) enhance the willingness of agents to meet their legal liabilities, (ii) increase the effectiveness of the tax services in enforcing the law, and (iii) provide guidance to policy makers on directions for tax reform. Further light is shed on these issues by a review of theoretical and empirical literature on tax compliance, as well as an examination of the problem of measuring tax evasion in the specific context of Madagascar and Tanzania.

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I. INTRODUCTION

Large budget deficits are the root of macroeconomic instability in most of Sub-Saharan Africa (SSA). With notable exceptions, i.e. countries recently experiencing hyperinflation, SSA government revenue as a ratio to GDP is not low by developing-country standards. However, the ratio of expenditure to GDP is comparatively high, and the deficit after foreign grants and loans has exceeded 3 percent of GDP in recent years, keeping inflation high and undermining efforts to restart the growth that Africa experienced in the early postwar period.

To correct this problem, African governments have to address both the revenue and expenditure sides. Efforts to control expenditure focus on overstaffed and unproductive civil services, losses incurred by inefficient public enterprises, and wasteful public investment, large amounts of which are diverted for political advantage or personal enrichment.

On the revenue side, which is the concern of this paper, much thought goes into devising new taxes and considering how high average and marginal tax rates can be pushed before diminishing returns set in. At the same time, the opening of African economies to international trade that is the single most important component of structural adjustment has demanded reduction of the trade taxes dominating SSA's fiscal toolkit. Moreover, viewing Africa in the light of East Asian growth suggests that maintaining a low overall tax burden is a precondition for rapid growth.¹

These considerations draw interest to the question of tax compliance in Africa. The observed phenomenon of highly uneven tax administration suggests that efforts to reduce evasion might make it possible to ease the burden on economic agents who currently pay all or most of their taxes, thus increasing allocative efficiency in general, enhancing incentives for those agents to invest and produce, and promoting growth with equity.

The present paper focuses on tax compliance, attempting to establish a framework for research on the issue of whether enhanced *transparency* in tax administration might increase compliance significantly (or at least enough to yield a positive return on research cost). The subject goes well beyond the domain of economics, raising the question of whether heightened understanding on the part of economic agents about the extent of noncompliance and its implications for economic stability and growth might (i) enhance the willingness of agents to meet their legal liabilities, (ii) increase the effectiveness of the tax services in enforcing the law, and (iii) provide guidance to them on directions for tax reform.

Section II quantifies briefly the foregoing assertions about government finance and inflation in Africa compared to other developing regions. Section III reviews the theoretical and empirical literature on tax compliance. Section IV addresses problems of measuring tax evasion. Since the authors are involved in field research in Madagascar and Tanzania, this section reviews efforts to measure evasion in those countries. Section V outlines five facets of transparency where the study

hypothesizes that concrete steps by the tax authorities could improve compliance. Section VI offers concluding remarks.

II. GOVERNMENT FINANCE, DISSAVING, AND INFLATION IN AFRICA

According to the World Bank's *African Development Indicators 1996* (hereinafter *ADI'96*), the weighted mean ratio of revenue to GDP in SSA during 1990–1994 was 17.9 percent.² (Unless otherwise indicated, all SSA data in this paper exclude South Africa.) This compares with 13.3 percent for 11 Asian economies, and 19.1 percent for 17 Latin American countries, based on IMF (1995).³

On the other hand, the ratio of SSA government expenditure (including net lending) to output is high in relation to the two comparator regions. *ADI'96* puts it at 26.1 percent during the same period, giving an average deficit (excluding grants) of 8.3 percent. Comparable data from IMF (1995) show ratios of 15.0 percent for Asia and 20.4 percent for Latin America, implying average deficits below 2.0 percent.⁴

Finally, *ADI'96* puts grants to government during the same period at 1.7 percent of GDP, making the budget deficit 6.5 percent net of grants. With foreign financing at 3.2 percent, the deficit to be financed domestically amounted to 3.3 percent. These parameters are summarized in Table 1, Part A.

Financing the deficit, whether from domestic or foreign sources, has had a predictable effect on both aggregate saving and price stability. Table 1, Part B, illustrates the situation as regards saving. SSA's 1994 saving ratio is a third lower than that of South Asia and the Western Hemisphere, and equals just over a third of the ratio of low- and middle-income countries of East Asia and the Pacific. Particularly alarming is SSA's sharp drop from a rate of 23.5 percent of GDP in 1980 to just 13.8 percent in 1994, a period during which South and East Asia raised their respective saving rates sharply.

Regarding prices, *ADI'96* data for 36 countries during 1990–1994 yield a weighted average annual CPI increase of 28 percent (see Table 1, Part C).⁵ This figure is influenced downward by inclusion of ten CFA⁶ countries whose price levels were repressed until 1994 by adherence to a fixed, overvalued exchange rate that contributed significantly to economic stagnation.⁷ Removing the CFA countries raises the average to 36 percent.⁸

These figures compare with 9.7 percent for what the IMF's *International Financial Statistics* calls "developing countries of Asia."⁹ To be sure, the comparable Latin American average, 309 percent p.a. for DCs in the Western Hemisphere, is a multiple of both Africa's and Asia's 1990–1994 inflation rates, due to the heavy weight of Argentina, Peru, and especially Brazil during recent inflationary episodes.

TABLE 1 REGIONAL COMPARISONS: AFRICA, ASIA, AND LATIN AMERICA (All figures in percentages)	
Region (See notes to table, next page)*	

	Sub-Saharan Africa, Excl.:		Asia (Low- to Middle-Income Countries)			Western Hemisphere
	South Africa	South Africa & CFA	South Asia	East Asia/Pacific	All Asia	
Part A—Central Gov’t Finances: Ratios to GDP, 1990–1994						
Revenue, excl. grants	17.9				13.3	19.1
	26.1				15.0	20.4
Deficit	-8.3				-1.7	-1.3
Financing						
Foreign Grants	1.7					
Foreign Loans	3.2					
Domestic	3.3					
Part B—Gross Domestic Saving: Ratios to GDP						
1980	23.5		15	28		23
1994	13.8		20	37		20
Part C—Inflation: CPI Increases, Annual Averages, 1994/1990						
	28	36			9.7	309
*Sources for Table 1 Part A —SSA data from World Bank (1996a), pp. 183, 185, 187–189. Other regions calculated from IMF (1995), pp. 90–93, covering 11 Asian and 17 Latin American countries, with individual country data weighted by product of 1994 population and per-capita GNP according to World Bank (1996b), pp. 188–190. Part B —SSA data from World Bank (1996a), p. 28. Other regions from World Bank (1996b), p. 213. Part C —SSA data (excluding Zaire) obtained by aggregating World Bank (1996a, p. 46) 1990–1994 data for individual countries, weighted by 1994 nominal GDP in dollar equivalents according to same source, p. 22. Other regions are geometric means, 1994/1990, calculated from indices in IMF (1996), p. 113.						

III. TAXPAYER COMPLIANCE

Theoretical and empirical research on why persons subject to tax comply or fail to comply with their legal liabilities has been pursued by social scientists from various disciplines. The direct benefit of successful evasion is obvious; it is the value of the payments evaded, comprising the resources thereby saved.

Most research focuses on cost factors—(i) the evader's net present value (NPV) of legal (formal) sanctions, taking into account probabilities of (a) detection and (b) enforcement; (ii) the diseconomies (to large evaders) of inflation, trade restrictions, etc. resulting from the direct or indirect (via example to other taxpayers) impact of the evader's conduct on the budget deficit; (iii) disutility associated with social (i.e. informal) sanctions, taking into account the probability of detection by unofficial social agents; and (iv) disutility associated with violating personal moral standards (if present).

A. Theory

Several microeconomic models of taxpayer compliance have evolved from Beekers (1967) pioneering model of criminal choice. Becker mentioned tax evasion as a possible area of application; Allingham and Sandmo (1972) pioneered such an application. Their analytic paradigm depicts income tax evasion as portfolio decision making based on the von Neumann-Morgenstern expected utility model.

In this framework, a representative rational taxpayer regards concealed income as a risky asset, contingent on whether the evasion will be detected, and maximizes his or her expected utility. Key variables include: pretax income, the marginal tax rate, detection probability, penalties, the degree of risk aversion, and the extent of honesty. AS derive *interior maxima* and examine comparative statics or welfare impacts of tax enforcement.

Variants of this analysis include Srinivasan (1973), Kolm (1973), Singh (1973), Yitzhaki (1974, 1987), McCaleb (1979), Nayak (1978), Pencavel (1979), Gottlieb (1979), Christiansen (1990), Cross and Shaw (1982), Koskela (1983a, 1983b), Cowell and Gordon (1988), Toma (1989), Falkinger (1991), Landskroner et al. (1990), and Chu (1990a, 1990b).

Some writers [e.g. Srinivasan (1973)] assume risk neutrality and work with maximization of expected income in lieu of maximization of expected utility. Wiess (1976) incorporated a flexible labor supply into the model. Isachsen and Storm (1980), Sandmo (1981), Isachsen et al. (1985), Cowell (1985, 1990), Slemrod and Yitzhaki (1987), and Yamada (1990) extended this analysis. These studies are frequently characterized as random-audit models, all taxpayers being assumed to face the same audit rate irrespective of characteristics of their tax return or compliance status.

These models typically feature compliance varying monotonically with the risk of noncompliance. Most predict that increasing the audit rate augments reported income. Isachsen and Storm (1980) describe a two-sector economy, featuring a legitimate sector with a high audit rate, and a hidden economy with a low rate. They show that, if the difference in rates exceeds a certain threshold, a further increase in the legitimate sector audit rate induces workers to move to the hidden economy, opening up the possibility that aggregate reported income could fall.

Wadhawan (1992) models the optimal level of “residual” tax evasion to be tolerated in the light of control costs. The majority of random-audit models provide no basis for increasing compliance by decreasing tax rates or simplifying tax assessment.

Treating tax compliance as a game between the tax authority and taxpayers, Hoeflich (1983) refined the portfolio paradigm. Greenberg (1984), Reinganum and Wilde (1985a, 1985b, 1988), Graetz et al. (1986), O’Keeffe (1986), Schotchmer (1987), Melumad and Mookherjee (1989), and Cremer et al. (1990) also pursue this approach. Virmani (1983, 1987) posits a game between taxpayers and venal tax officials.

All these models explore the strategic response of one party to another’s behavior, and shed light on design of an optimal audit or penalty scheme. Noting that professional tax preparers account for over half of U.S. individual income tax returns, Graetz et al. (1989) extend the game model to include tax practitioners as additional players. Ensuing studies in a similar vein are Klepper and Nagin (1989a, 1991), Schotchmer (1989), and Reinganum and Wilde (1991).

Noting the authorities’ resort to interactive strategies, where returns are selected for audit on the basis of characteristics linked to substantial underreporting, researchers have modeled these strategies using two alternative game-theoretic approaches, the principal-agent and Nash equilibrium models. Using the principal-agent model, Reinganum and Wilde (1985b) show that an audit-cutoff strategy raises revenue if taxpayers are risk-neutral.

A Nash equilibrium model developed by Graetz et al. (1986) shows increases in the penalty rate, the differential between “low” and “high” income earners, and/or the tax rate all increasing tax compliance. Lansberger and Meilijson (1982) and Greenberg (1984), using a multiperiod dynamic model, find that maximizing revenue from a taxpayer over his lifetime requires changing his probability of audit from year to year.

Disaggregating taxpayer behavior, Klepper and Nagin (1989b) show compliance responding differentially to varying probabilities of audit and severity of penalties depending on shares of different types of income. Klepper and Nagin (1991) and Mazur and Nagin (1987) address institutional complexities by disaggregating taxable income and incorporating tax practitioners.

Studies of dynamic aspects of tax compliance typically focus on tax amnesties. These include Lerman (1986), Leonard and Zeckhauser (1987), Andreoni (1991), Malik and Schwab (1991), and Stella (1991). Some view tax evasion as a substitute for borrowing (Andreoni, 1989). Still others study the effect of the interest rate on tax evasion (Crane and Nourzad, 1985).

Cognitive scientists have focused on perceptions of fiscal equity as an explanatory factor in tax evasion. Drawing from reference group theory, Scott and Grasmick (1981), Grasmick and Scott (1982), Thurman et al. (1986), and Dickens (1986) attribute tax evasion to a norm neutralization process. That is, tax evaders justify their cheating by the belief that everyone else does the same thing and/or that the benefits they receive from government fall below their share of the tax burden.

According to Grasmick and Green (1980), the extent of noncompliance by an individual's friends or acquaintances largely determines whether or not social sanctions attach to his own noncompliance. Addressing the interaction between social and legal sanctions, Yankelovich et al. (1984) dispute the significance of social sanctions because (i) noncompliance produces no identifiable victim, and (ii) a sizable share of the population regards the tax laws as unfair.

B. Empirical Studies

Empirical work on tax compliance is handicapped by data scarcity. Revenue authorities do not reveal their audit strategy, and official respect for taxpayer privacy further limits researchers' access to data. As regards compliance in the U.S., three approaches have been devised to fill the data gap: surveys, experiments, and examination of those limited taxpayer records to which the authorities grant access.

Surveys are used to investigate taxpayer consciousness of and attitudes towards the fiscal system, as well as participation in the underground economy. Studies focusing on attitudes include Vogel (1974), Spicer and Lundstedt (1976), Song and Yarborough (1978), Mason and Calvin (1984), Yankelovich et al. (1984), ICF (1985), and Westat, Inc. (1980a).

These studies have attempted to quantify taxpayers' perception of tax structure, objectives of taxation, opportunities for evasion, and evasion as a crime. Among factors predisposing individuals towards evasion, the surveys find youth, perceived opportunities for evasion, and perceived unfairness of the tax system, notably ease of evasion by the rich and influential. Conversely, evidence on the impact of more quantifiable factors such as tax rates and personal income is ambiguous.

Other studies—Isachsen et al. (1985), Pestieau (1985), and Lemieux et al. (1990)—use interview data to estimate models of evasion with an endogenous labor supply. Dependent variables are labor in the underground *versus* legitimate economy and amount of tax underreported. Results confirm theoretical hypotheses about effects of tax and tax-enforcement parameters on evasion. Key findings include: participation rates in the underground labor market are greater among males, craftsmen, middle-aged cohorts, and persons with nonworking spouses; and hours of work in the underground economy decrease with income.

Experiments are undertaken to ascertain rules of thumb by which taxpayers decide whether to evade. Sensitivity of tax compliance to various factors is tested in situations of simulated tax liability. Studies include Friedland et al. (1978), Schwartz and Orleans (1967), Spicer and Becker (1980), Spicer and Hero (1985), Benjamin and Maital (1985), Baldry (1986, 1987), Alm, McKee, and Beck (1990), and Byun (1990). Among key findings:

- (i) Large fines may be more effective than high probability of audit;
- (ii) In some situations, appeals to conscience and civic responsibility appear to be more effective than legal sanctions;
- (iii) Persons perceiving gross inequities in the tax system have a higher propensity to evade;

- (iv) The rate of evasion is correlated with tax rates;
- (v) Women have a higher propensity to evade than men;
- (vi) Increasing the subjective probability of audit reduces the probability of evasion but does not increase significantly the amount of tax paid.

The third approach—analysis of official microdata—relies on data collected by the Internal Revenue Service (IRS) under its Field Investigation and Experiment Samples (FIES) program, tax amnesty files, and/or tax returns. The first variant of this approach, represented by Dilnot and Morris (1982), Cooter (1984), Smith (1986), and O’Higgins (1981, 1989), involves a two-stage procedure: (i) identifying the group thought to have the highest propensity to evade, and (ii) comparing its expenditure/income ratio with that of other groups to infer concealed income.

A second variant uses data from U.S. states that have granted tax amnesties. Such studies include Fisher et al. (1989) and Dubin et al. (1990b, 1990c). According to Stella (1991), twenty-eight states (but not the federal government) have offered tax amnesties since 1982. Among industrial countries, Australia, Belgium, France, Ireland, and Italy offered amnesties in the last decade. Developing countries that have had tax moratoria or amnesties more than once in the recent past comprise Argentina, Bolivia, Colombia, Chile, Ecuador, Mexico, India, Panama, Peru, and the Philippines.

The third group typically uses cross-sectional Taxpayer Compliance Measurement Program (TCMP) data to test explanatory factors in compliance—marginal tax rates, income, audit activities, the ratio of withheld to gross income, the penalty rate, and demographic factors. This group includes Clotfelter (1983), Witte and Woodbury (1985), Dubin et al. (1987, 1989, 1990a), Dubin and Wilde (1988), Beron et al. (1988), Erikson and Sullivan (1988), Klepper and Nagin (1989a), and Erard and Feinstein (1990).

Investigators who have published findings based on access to actual tax returns are a much smaller population. They include Slemrod (1985), who studied U.S. 1977 tax returns; Alm et al. (1990, 1991), who examined Jamaican tax returns; and Gray and McPherson (1996), who worked with company and individual tax returns in the Gambia.

Among relevant findings, in addition to those discussed above:

- (i) Studies using very different methodologies support the hypothesis that detection probabilities associated with higher income visibility encourage more complete reporting of income (Feffer et al., 1983; Kagan, 1989; Klepper and Nagin, 1989b; Clotfelter, 1983; Witte and Woodbury, 1985; Dubin and Wilde, 1988; Beron et al., 1988; and Alexander and Feinstein, 1986);
- (ii) A taxpayer’s compliance is correlated with that of his friends, relatives, or acquaintances (Spicer, 1974; Vogel, 1974; and Westat, Inc., 1980b);

- (iii) Different econometric studies yield differing results in regard to correlation between income and compliance (Witte and Woodbury, 1984; Clotfelter, 1983; Alexander and Feinstein, 1986; Dubin and Wilde, 1988; Mason and Lowry, 1981);
- (iv) High compliance costs—time, effort, and psychic energy—act as a barrier to compliance (Slemrod, 1989, and Ekstrand, 1980);
- (v) Compliance levels correlate with perceived fairness of enforcement methods (Friedland et al., 1973), distribution of government expenditure (Thibaut et al., 1974), and inequity of tax rates (Spicer and Becker, 1980);
- (vi) Given numerous rational arguments and strategies that justify noncompliance, even respondents who exhibit strong aversion to fraud feel guiltless about cheating on their taxes. Thus, respondents agreeing with the statement “It is okay to claim an undeserved deduction when you are not sure what the rule is” use denial of responsibility strategy to reduce perceived guilt (Thurman et al., 1986);
- (vii) Attitudes toward tax law, compliance, and administration, particularly as regards perceived equity, relate more closely to tax compliance than do more general attitudes toward law and government (Ajzen and Fishbein, 1980; Spicer and Becker, 1980; Scott and Grasmick, 1981; Sears and Citrin, 1982; Lewis, 1982; Yankelovich et al., 1984; McEwen and Maiman, 1984; and Tyler, 1986);
- (viii) Tax law ambiguity and its impact on perceived equity correlates more closely with compliance than does the law’s complexity (Westat, Inc., 1980b);
- (ix) A citizen’s commitment to obey the tax laws is contingent on the state’s ability to ensure compliance of others (Yankelovich et al., 1984);
- (x) The adequacy of enforcement vis-à-vis one’s social peers concerns taxpayers less than enforcement vis-à-vis wealthier entities or blatant fraud (Yankelovich et al., 1984, and ICF, Inc., 1985);
- (xi) The greater the level of evasion by high-status individuals, the less likely that lower-status evaders who are detected will be treated harshly (Grasmick et al., 1983);
- (xii) High-status taxpayers have greater access to low-risk opportunities for evasion, are better placed to conceal it, and are less likely to be punished in comparison with low-status individuals (Klepper and Nagin, 1989b); and
- (xiii) In an African country (the Gambia), simplification of personal income tax and reduction of top marginal rates reduced taxpayer complaints and enhanced voluntary compliance as well as tax officials’ motivation to enforce compliance, increasing real receipts (Gray and McPherson, 1996).

IV. ESTIMATING TAX EVASION

A. Methods of Estimation

The literature reveals three primary approaches to estimating evasion: (i) analysis of income-expenditure discrepancies, (ii) the monetary (demand for currency) approach, and (iii) transactions modeling.

(i) Income-Expenditure Discrepancies. Park (1979) is credited with originating this approach, which estimates the unrecorded sector based on discrepancies between income and expenditure data in the national accounts. Macafee (1980) and Frey and Pommerehne (1982) carry the approach further.

A variation of this method is to compare Adjusted Gross Income (AGI) as estimated by the tax authority with data from the national income and product account (NIPA), after adjusting for conceptual discrepancies between the two sources. These arise on two accounts: first, some taxable income is excluded from NIPA. In the U.S., this applies to personal contributions to social insurance, net capital gains from sales of property, and taxable private pensions. Second, the revenue authority ignores some personal income included in NIPA: imputed income, certain transfer payments, and other tax-exempt income.

Using the AGI gap as a rough measure of unreported income, Crane and Nourzad (1985, 1986) and Bahl (1990) estimate the effects of economic variables (e.g. tax rates) on tax compliance. Similarly, Bird (1986) and Poterba (1987) use the aggregate voluntary reporting percentage (VRP) found by the TCMP.

(ii) Currency Demand. The point of departure for this approach, which traces back to Cagan (1958), is the advantage of currency over checks for payments that taxpayers wish to conceal from the tax agency. Variations in currency holdings are construed as reflecting movements in the underground economy. Three variants are found in the literature: currency-denomination, fixed-ratio, and currency-equation.

The *currency-denomination* variant depicts the underground economy as relying on bills of certain (large) denominations, so that changes in transactions are reflected in the number of such bills in circulation. Two drawbacks of this method are that composition of currency holdings varies over time with output and inflation, and bills in circulation also respond to changes in foreign demand.

The *fixed-ratio* variant is based on a monetary coefficient [e.g. the ratio of currency, C , to demand deposits, D —see Gutmann (1977)] that the model assumes would have remained constant over time in the absence of the underground economy—clearly a heroic assumption. Increases in the ratio after time zero, when the underground economy is assumed to be at a historic low (or, in some variants, nonexistent), are assumed to reflect the growth of underground activity. In lieu of C/D , Feige (1979) uses MV/GNP , where M is narrow money supply and V is transactions (not income) velocity of GNP. Time zero is the mid 1960s for Feige and the late 1930s for Gutmann.

Following Gutmann, Maliyamkono and Bagachwa (MB, 1990) put Tanzania's underground or "second" economy in 1986 at 31.4 percent of officially estimated GNP. Measuring nominal economic growth during 1978–1986 at 30.1 percent p.a. as opposed to the official estimate of 19.4 percent, they found the second economy picking up rapidly during economic slowdowns in the 1970s. Five years later Osoro (1995) applied the same methodology to revised national accounts and monetary data. His results for 1975–1978 and 1984–1986 are comparable to MB's, conversely his figures for the intermediate period 1979–1983 are substantially below theirs (see Table 2 below).

Treating the underground economy as a result of high taxes, the *currency-equation* approach estimates the demand to hold currency (i) with the existing tax structure and (ii) assuming zero tax. Tanzi (1983) computed tax evasion in the U.S. from estimates of the underground economy during 1930–1980. Acharya (1984), Feige (1986), Thomas (1986) and Zilberfarb (1986) criticize Tanzi's analysis on both methodological and empirical grounds. In response, Tanzi (1984, 1986) has accepted the limit on his estimate of evasion which Zilberfarb set by using marginal rather than average tax rates.

Dispensing with tax variables to estimate the hidden economy, Bhattacharya (1990) applies an autoregressive structure to quarterly UK data for 1960–1984. While elegant, the method, requiring a time series of at least 50 observations, is not practical for SSA economies. Even given a series of sufficient length, meaningful results are unlikely.

Using a modified demand-for-currency equation along the lines of Tanzi (1983), Isachsen et. al, (1982), and May (1985), Bagachwa and Naho (BN, 1995) estimate Tanzania's underground economy, which they view as having three components:

- (i) An informal sector comprising small enterprises and self-employed persons;
- (ii) A parallel market comprising transactions that evade government controls with respect to goods and services that are not *per se* illegal;
- (iii) A black market that produces and/or distributes illegal goods and services, the principal component being smuggling of imports.

An advantage of the BN (1995) approach is to introduce factors additional to second economy transactions to explain movements in currency holdings. While still based on the premise that second economy transactions take place in cash, the model does not assume a constant *C/D* ratio and is thus richer than the earlier MB (1990) approach.

Table 2 compares the MB, BN, and Osoro results for second-economy value added as a ratio to officially estimated GDP. By restricting their scope to local currency, all these estimates have the drawback of overlooking currency substitution (dollarization) and offshore payments. Moreover, from the policy-oriented viewpoint of wanting to estimate noncompliance subject to correction, another drawback is failure to distinguish the informal sector, which will never pay taxes directly, from the underground formal sector that evades its liability through double or triple bookkeeping.

Table 2 Alternative Estimates of Tanzania's "Second" Economy (All figures give "second" economy value added as a percentage of officially estimated GDP)												
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Maliyamkono & Bagachwa (1990)									6.6	2.8	0	9.8
Bagachwa & Naho (1995)		6.8	5.3	12.8	12.5	17.6	17.6	21.0	17.8	15.5	12.4	24.0
Osoro (1995)	9.9	5.8	3.4	15.3	15.2	24.8	9.0	10.4	5.2	2.6	0	9.5
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
MB (1990)	21.1	24.2	27.2	28.2	22.0	25.4	28.8	31.4				
BN (1995)	26.4	24.0	26.9	26.4	24.3	30.7	25.4	21.2	27.8	26.0	30.2	33.2
Os (1995)	2.6	3.3	10.0	11.2	4.3	28.0	26.3	28.3	31.0	21.0	25.1	31.0

(iii) Transactions Modeling. In a major modification of the currency demand approach, Feige (1979) proposed estimating unrecorded monetary income via Fishers equation of exchange. A decade later Feige (1989) applied this approach to several European countries.

Of all macroeconomic approaches the most comprehensive and advanced is that of Aigner et al. (1988), who measure the U.S. hidden economy with a dynamic multiple-indicators, multiple-causes model. Explanatory variables comprise: indicators of the burdens of taxation and regulation, tax morality, monetary transactions, labor market participation, and growth of real output.

B. Tax Evasion in Tanzania

Osoro (1995) estimates tax evasion in Tanzania by calculating the ratio of actual revenue to officially estimated nominal GDP, and assuming that underground activity generates theoretical tax liability in the same ratio. Thus, evasion is assumed to bear the same ratio to actual revenue that the underground economy does to officially estimated GDP.

With underground activity valued at zero in 1977 (a questionable assumption, to be sure), Osoro's procedure shows evasion varying between zero in that year, a 1967–1977 maximum of 25 percent of revenue in 1972, and subsequent maxima of 31 percent in 1987 and 1990.¹⁰ Osoro offers several reservations concerning these estimates:

(i) To the extent underground activity serves to augment personal income that agents earn “above ground,” the increment is subject to marginal rates higher than the averages Osoro uses to compute evasion.

(ii) Many forms of evasion—claiming fraudulent exemptions and costs or deductions, concealing formal-sector income—have nothing to do with the underground economy. Taking this into account, the procedure understates evasion.

(iii) Since taxation of income poses a negative incentive to the work or investment generating that income, activity in the underground economy would diminish were it subjected to taxation. Indeed, illegal activity would vanish to the extent regulators coordinated with their tax colleagues. On this basis, Osoro’s procedure generates an upper bound to evasion.

(iv) The productivity of many agents operating in the underground economy, especially the informal sector, and hence the opportunity cost of their labor, is lower than that of formal-sector agents. To this extent, applying the above-ground average tax rate overstates taxable income and evasion.

If one assumes with Osoro that the ratio of evasion to perceived revenue equals second-economy output/officially estimated GDP, BN’s (1995) estimates of the second economy during 1968–1990 imply evasion rates rising fairly steadily from 7 percent in 1968 to 26 percent in 1979 (see Table 2), and remaining in the latter range thereafter, with a maximum of 33 percent in the final year. Recasting these as ratios to total tax liability (including evasion) yields rates in the range of 21 percent (1979) to 25 percent (1990).

The *ADI’96* tables on SSA fiscal performance underlying Table 1 put Tanzania’s 1990–1994 average revenue/GDP ratio at 14.9 percent, and the corresponding ratio for expenditure plus net lending at 20.5 percent.¹¹ Thus, if truly equal to one third of actual revenue, evasion would approximate the fiscal deficit before taking account of grants.

C. Tax Evasion in Madagascar

Analogous *ADI’96* data for Madagascar put 1990–1994 revenue at 10.5 percent of GDP (12.0 percent in 1994) and expenditure plus net lending at 18.9 percent (20.6 percent in 1994), making Madagascar’s deficit of 8.4 percent larger by half, proportionally, than Tanzania’s. (IMF data paint a gloomier picture of recent trends, putting 1994 revenue/GDP at 7.9 percent of GDP and expenditure at 19.9 percent.)¹² This difference draws interest to the question of whether evasion is a larger problem in Madagascar than in Tanzania.

Noting that the Malagasy authorities introduced preshipment inspection (PSI) in June 1983 in an effort to restrict both capital flight and underinvoicing of imports to avoid customs duties, Yeats (1991) compares import prices declared by importers before and after PSI. Finding no statistically significant difference, he concludes that PSI has not significantly reduced evasion of import duties.¹³

In order to take into account tax incidence and its disincentive effect on economic activity, de Melo et al. (1992) estimate revenue losses through exemptions and evasion on the basis of a ten-sector general equilibrium model of the Malagasy economy. Recomputing 1988 output with schedular tax rates applied to the relevant bases, they estimate putative revenue from import duties, VAT, and consumption tax at 15.1 percent of GDP, compared with 6.4 percent of actual receipts. At 8.7 percent of GDP, this estimated loss through exemptions and evasion is, as with Tanzania, comparable to the fiscal deficit.

V. MODES OF TRANSPARENCY FOR ENHANCING TAX COMPLIANCE

A. Why Bother To Enhance Tax Compliance?

The fact that an estimate of tax evasion happens to approximate the fiscal deficit in no way implies that eliminating evasion altogether or even reducing it only modestly is a feasible or desirable approach to balancing the budget. Reducing to zero what Wadhawan (1992) describes as “residual” evasion would involve an incremental expenditure of administrative resources costing far in excess of incremental receipts.

Moreover, financial benefit-cost analysis is not an appropriate tool for assessing optimal tax policy, because tax payments represent in the first instance a transfer between agents in society rather than an increment in real resources. Assessing the economic benefit from a given reduction in evasion is, rather, a complex matter of evaluating net benefits created (or social costs avoided) at the margin by (i) public expenditure; (ii) reduction of government borrowing, whether neutral or inflationary; and (iii) incentive effects on economic agents arising from perceived official tolerance of evasion by other agents.

The IRS (1996) estimates that it collects 87 percent of the amount of individual income tax that is owed to it. The fact that it stops at 87 percent, and doesn’t devote the resources necessary to increase its “take” to, say, 90 percent, reveals a determination by American society, through its elected representatives, that the social cost of spending more on the IRS would exceed the social benefit of the increased revenue.

B. Facets and Measures of Transparency in Tax Administration

As Tanzi (1987) points out, tax administration determines the real (or effective) as opposed to the statutory tax system. In the words of his IMF colleague, Casanegra de Jantscher (1990), in developing countries, “tax administration is tax policy.”¹⁴

In a recent paper, Tanzi and Pellechio (1995) draw on wide experience in the IMF’s Fiscal Affairs Department to present six essential elements for successful reform of tax administration, and recommend a series of interventions to improve its effectiveness and efficiency, as well as reorganization of tax agencies to support five principal functions. One of the functions is a key facet of transparency, namely, taxpayer education.

The premise of the present paper is that additional facets of transparency vis-à-vis the general public can and should be pursued to enhance compliance by promoting three subsidiary objectives:

- (1) Augment taxpayers' appreciation for the social benefits of taxation or, viewed the other way around, the social cost of government's failure to collect the bulk of taxpayers' liability according to law;
- (2) Satisfy taxpayers that government is being more open and honest than hitherto about the extent and nature of evasion, and is trying to even the tax burden by pursuing major defaulters; and
- (3) Motivate the tax administration to take a more systematic approach towards evasion by setting and pursuing targets for reducing it, and ensuring regular and open evaluation of performance.

The aspects of transparency reviewed below are:

- (i) Taxpayer education and services;
- (ii) The extent of evasion and corrective measures;
- (iii) Undertaxed income from rentals paid by foreign residents;
- (iv) Tax expenditure budgeting—publicizing tax exemptions and holidays; and
- (v) Institutional dimensions of enhancing transparency.

(i) ***Taxpayer Education and Services.*** This facet has two dimensions, one concerning the taxpayers interface with the tax system in regard to his own tax liability, and the second concerning the government's effort to convince the population subject to tax of the social benefits associated with tax collection.

Compliance is inversely correlated with its cost. In the United States, efforts have been made to quantify the cost of determining and settling tax liabilities. The IRS itself gives income taxpayers its estimate of the “average” time required to keep records, learn about the law or tax form, prepare the form, and “copy, assemble, and send the form to the IRS.”¹⁵ A much higher cost is incurred in paying tax professionals and purchasing other inputs into the process, such as computer software; Slemrod (1990) estimates this at \$35 billion annually, or more than five times what the IRS itself spends to collect the tax.

Most SSA tax systems give little weight to assessing or controlling compliance cost. The atmosphere is overly adversarial, clear instructions are scarce, and taxpayers are forced to spend long hours in queues in order to submit their returns and get them accepted. The procedure for handling taxpayer appeals is tortuous and opaque.

As one measure of tax administration reform, the IMF advises DCs to “empower taxpayers to assess and pay their own tax liabilities according to prescribed procedures.”¹⁶ As the Fund notes,

such a step requires that resources be reallocated to taxpayer education. The problem is complicated further insofar as a portion of the population incurring tax liabilities is illiterate. The World Bank estimates adult illiteracy in SSA as of 1995 at 35 percent for males and 54 percent for females, with only South Asia showing lower regional averages.¹⁷

Educating the public about taxation in general is a complex matter involving issues currently being actively debated under the heading of governance.” A major objective of such education would be to carry public opinion beyond mere cynicism about tax evaders, instead conveying the notion that evasion, far from being a “victimless” crime, causes inflation and impedes job creation. Sadly, in most African countries where fiscal deficits threaten economic stability and impede growth (and this refers to most of SSA), one searches in vain among pronouncements and directives of the political leadership for recognition that rampant noncompliance with tax laws is the leading culprit. Even more sadly, the principal reason for this is that many political leaders are among the biggest evaders.

(ii) *The Extent of Evasion and Corrective Measures.* In most DCs, the bulk of income tax is collected from a minuscule percentage of the population. In regard to indirect taxes, Casanegra de Jantscher and Bird (1992) describe it as “not uncommon” for 60 to 70 percent of collections to come from one percent of taxpaying firms, that is, a few hundred or (in larger countries) a few thousand units. One does not need a Ph.D. in political science to appreciate the large overlap between large taxpayers and the population that wields economic and political influence, and the resulting leverage of such individuals and entities—hereinafter termed *oligarchs*—to negotiate their tax assessments down to a fraction of their true liabilities or even to zero.

Analyzing the U.S. 1987 taxpayer opinion survey, Sheffrin and Triest (1992) find that perceiving other taxpayers, especially the rich and influential, as cheating on taxes significantly increases the likelihood that an individual will evade his or her own liabilities. Underlying this behavior are two distinct motivations—a perception of low risk of detection and sanctions, and a reduced feeling of civic duty to contribute to an unfair tax system.

In several Latin American countries—e.g. Argentina, Bolivia, Colombia, and Mexico—highly visible prosecution of public figures as tax evaders preceded increases in the revenue share of GDP going well beyond collections from the individuals in question. In Argentina, the increase was from 17 percent in 1990 to 22 percent in 1992, while increased compliance in Mexico more than offset a drastic reduction in tax rates (Wolf, 1993).

Prosecution and sanctions for tax fraud are few and far between in SSA. Gray and McPherson (1996) report the frustration expressed by the Gambia’s income tax commissioner over the fact that his government’s attorney general’s chambers had never acted on any cases of blatant tax fraud referred to it.

Such issues of enforcement, while clearly vital to tax reform and thus structural adjustment, will be settled (or remain open) in response to weightier forces than any perceptions arising out of policy-oriented research. However, an issue that has yet to be systematically researched in Africa, where answers might provide useful indicators for policy, is the extent to which the proportion of own

liabilities that other (non-oligarch) taxpayers voluntarily meet would be affected by (i) systematic estimation of the extent of evasion by oligarchs, (ii) overt acceptance and dissemination of these findings by the tax administration, even if with qualifications, and (iii) announcement by the administration of concrete steps it will take to curb such evasion.

(iii) *Undertaxed Income from Rentals Paid by Foreign Residents.* Rental income from urban real estate is grossly undertaxed in most African countries. A World Bank report (1993) shows rentals accounting for 50 to 60 percent of Madagascar's urban housing market, but little of this income is taxed. There, as elsewhere in SSA, the resident foreign community, including representatives of donor agencies, pays some of the highest rents, but is not asked to report these payments to the tax authority.

Like any other tenants, the foreign community has no interest in seeing its rents increased, and would expect landlords to react to extension of the tax net by demanding higher rents. Missions with diplomatic privileges might deny information on the basis of their tax-exempt status, even though the tax authority assessed landlords and not the missions.¹⁸

Enhancing transparency under this heading involves starting with a systematic canvass of the rental market, paying particular attention to properties leased to foreign agencies and individuals. The approximate level of gross rents, especially for high-value commercial and residential property, is widely known. With standard cost coefficients and allowances for depreciation, incorporating inflation adjustment, net income and putative tax liability can be estimated and compared with reported income and assessed tax.

Many foreign missions repeatedly urge their host governments to curb inflation and/or augment social services by increasing tax collections (in the boilerplate language of countless IMF country reports, "improving tax administration"). By publicizing findings from this study, the authorities (or local researchers) can lean on the foreign guests to make their contribution by reporting rental payments.

(iv) *Tax Expenditure Budgeting—Publicizing Tax Exemptions and Holidays.* This facet concerns the treatment of exemptions and holidays that are accorded to taxpayers either by the executive branch, normally the president and/or finance minister, or by the legislature. Most countries' laws require these to be announced in the official gazette, but many are granted on an *ad hoc* basis and never published, and/or the gazette is subject to delays of several months and few people read it.

Tanzanian law empowers the finance minister to waive customs duties and excise taxes on particular goods, and to exempt specific individuals from full or partial payment of those taxes.¹⁹ (The donor community has long pressed the GoT to abolish this authority, and the bill submitted to parliament in 1995 to establish a semi-autonomous Tanzania Revenue Authority eliminated it, but parliament reinserted it before passing the law.)

Effective transparency here involves not merely gazetting exemptions as they occur, but also maintaining a cumulative account of exemptions enjoyed by specified taxpayers; relating the exemptions to other data about activities of those taxpayers; aggregating the data to relate exemptions to such parameters as exports of products incorporating duty-free inputs (the idea being to assess leakage of exempted products into trade); and last but not least, public dissemination of the findings.

The hypothesis is that shining a spotlight on exemptions, regardless of who has authority to grant them—preferably no one short of the legislature—will raise the cost to grantors and recipients in cases lacking social justification.

Apart from exemptions, an *ex post* tax expenditure budget includes foregone revenue arising from company tax holidays. This involves requiring companies to file zero-payment returns so the revenue service can compute (and publicize) foregone revenue.

(v) *Institutional Dimensions of Enhancing Transparency.* This facet comprises the institutional framework for ensuring transparency and accountability of the tax administration. A simplistic approach to realizing the substantive facets of transparency listed above would be to establish a corresponding unit in the service, or even merely to give appropriate terms of reference to its existing public relations office.

Clearly the facet of taxpayer education and services is in the first instance a function of the tax administration (and one requiring a higher level of technical competence than attaches to most public relations units). On the other hand, transparency vis-à-vis transactions with individual taxpayers would be advanced by establishing an autonomous, or at least semi-autonomous, office of tax ombudsman charged with evaluating taxpayer complaints. Establishing a quasi-judicial body before which taxpayers can formally protest their assessments—cf. the All-India Tax Tribunal—means carrying transparency one step further.

To the extent transparency involves assessing the evenness of compliance and enforcement, and disseminating objective indicators of the tax service's performance, an independent agency is called for. This is all the more so, considering the temptations facing staff to negotiate corrupt bargains with taxpayers. In this connection, one is inclined toward an independent agency analogous to the office of Auditor and Controller General or Cour de Comptes characteristic of Anglophone and Francophone countries, respectively, with a mandate to evaluate revenue performance rather than public expenditure.

Such an agency would regularly generate and publicize measures of compliance with different taxes. Much of this analysis would have to be done by economists estimating the relevant tax bases, comprising: imports legally subject to duties; domestic transactions subject to VAT, excise, or sales taxes; corporate and individual income legally subject to direct taxation, and so on. Comparison of putative liabilities corresponding to those bases with actual collections would then yield the rate of compliance.

Similarly, the agency would compute and publish detailed indicators of performance of the revenue service, e.g., number of returns processed from businesses in category X during year Y, compared with independent data (commercial register) about businesses in that category. It would also compare this data with indicators gathered from other countries.

Publication of findings would press the tax service to set targets for raising compliance and reducing leakage through bribery. The more convincing taxpayers found this posture, the greater their own

willingness to cooperate, whether out of civic responsibility to contribute to a fair tax system, or perceived risk of detection and sanctions for fraud.

The agency would also track, cumulate, and publicize exemptions, and analyze how far the exemptions corresponded to socially valued activities (for example, how far import duty exemptions correspond to manufactured exports or to use of commodities by nongovernmental organizations.)

There is no intention here to be facile about the obstacles to establishing effective new units in SSA administrations. Agencies such as those envisaged here could themselves become corrupted, starved of funds to pay market value for talent, struggling to produce reports on the outturn five years previously, and so on.

VI. CONCLUDING REMARKS

This paper has not proposed an integrated tax reform for Madagascar, Tanzania, or any other SSA country. It has not even presented a comprehensive program for reducing tax evasion. It has, however, suggested a number of measures, under the heading of enhancing transparency, that it hypothesizes will contribute to raising compliance.

Underlying these measures is the principle that the African citizenry comprises rational beings with attitudes that can be molded and harnessed to promote the common good. Specifically, SSA citizens:

- perceive the difference between a stagnant economic environment offering minimal opportunities for advancement, and a dynamic one offering positive opportunities to a significant share of the population;
- look to the government to provide certain social and physical infrastructure;
- can be guided to an understanding that fiscal deficits, resulting largely from noncompliance by discrete segments of society, breed inflation and stagnation and undermine government's capacity to serve, with strongly negative effects on equity; and
- rather than let their knowledge about large-scale evaders *cum* government accomplices make them cynical about government and discourage civic participation, can be motivated to agitate effectively for corrective action.

The measures proposed here call upon government to assume a much more transparent posture about the problem of evasion—to share regularly with the public (i) reasoned estimates of its extent and modalities, and (ii) plans to control it. If the paper's hypotheses are correct, government will by this means help to create a civic lobby that will press to have these plans implemented.

Because reasoned estimates and credible plans are not prepared in a vacuum, the paper proposes new machinery, in- and/or outside the tax administration, to do the necessary work and ensure its dissemination. Research is called for to investigate the feasibility of the approach suggested here, and refine proposed strategies for its implementation.

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End Notes

1. Cf. Jeffrey Sachs's (1996) argument that "marginal tax rates of any kind higher than 20% will surely be evaded, and will open festering wounds of corruption." He advocates uniform tariff rates of around 10%, and, noting that the U.S. federal government has never attempted to collect as much as 23 percent of GDP, berates the IMF for pressing this target on Mozambique.
2. This estimate was derived from data for forty-three countries. In three of the countries, due to unavailability of data, a shorter series was used (ending in 1991, 1992, or 1993).
3. We took annual data on revenue as a percentage of GDP during 1990–1993 from the IMF source, filling gaps by extrapolating previous-year ratios, and calculated regional averages using as weights the product of 1994 population and per-capita GNP according to World Bank (1996, pp. 188–89). The ratio for Asia, which excludes Japan, Singapore, and Taiwan, is, of course, heavily influenced by China's extraordinarily low proportion, which halved from 6.6 percent in 1990 to 3.3 percent in 1993.
4. The same sources were used to calculate regional expenditure/GNP ratios.
5. *ADI'96*, Table 3-3 (Consumer Price Index), p. 46, gives a regional average of 12.4 percent, but this is clearly a miscalculation. The authors used *ADI* country data in an attempt to reproduce the document's averages for both inflation and the ratios of government revenue and expenditure to GDP (*rev/GDP* and *exp/GDP*). They used as weights *ADI*'s series on 1994 current-price GDP in dollar equivalents (Table 2.5, p. 22; the document describes, on pp. 3 and 215, a more complex weighting procedure involving three-year GDP averages and gap-filling for countries with missing data). For *rev/GDP* and *exp/GDP*, the authors' results were within one percentage point of the *ADI* data cited in the text above.
6. Communauté Financière Africaine, the monetary union of West and Central African countries whose currency (known as the CFA franc) is backed by France.
7. CPI data are not available for three of the CFA zone's thirteen countries.
8. Both the 28- and 35-percent figures exclude Zaire, for whose annual CPI increase during 1990–1994 *ADI'96* gives a figure of 2,145 percent. Including Zaire raises the regional mean to 138 percent with CFA countries included, 177 percent without them.
9. Asian figure calculated from 1994 regional average consumer price index in IMF (1996, p. 113). For Africa this IMF series yields an average annual CPI increase of 42 percent; since South Africa and Zaire are included, the series is not comparable with that used in the text.
10. Osoro (1995), p. 17.

11. *ADI'96*, pp. 185, 187.
12. IMF (1995), p. 13. Figures for 1994 are labeled “preliminary.”
13. Yeats does not address the question of whether PSI decreased the share of imports escaping the customs net.
14. Page 179.
15. Internal Revenue Service (1996), p. 7.
16. Tanzi and Pellechio (1995), p. 11.
17. World Bank (1996b), p. 201.
18. The Gambian tax authorities received this response upon approaching diplomatic missions in that country in the late 1980s.
19. Government of Tanzania (1995).

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